## CLAIMS

## What is claimed is:

- 1. A method for optimizing at least one numerically controlled delay line (NCDL) in a DDR memory controller, the method comprising:
  - (a) calculating an offset value for at least one NCDL; and
- (b) interpolating a new offset value for the at least one NCDL, based on a change in a delay locked loop (DLL) output value from a previous DLL output value to a new DLL output value.
- 2. The method of claim 1, wherein the at least one NCDL comprises at least one of a write NCDL, a read NCDL, and a gate NCDL.
- 3. The method of claim 1, wherein the offset value comprises a final write NCDL offset.
- 4. The method of claim 1, wherein the offset value comprises a final read NCDL offset.
- 5. The method of claim 1, wherein the offset value comprises a final gate NCDL offset.
- 6. The method of claim 1, wherein the interpolating of the new offset value comprises:

interpolating a scaling factor, wherein the scaling factor is a function of the previous DLL output value and the new DLL output value.

- 7. The method of claim 6, wherein the interpolated new offset value is a function of at least one of the scaling factor and the offset value.
- 8. The method of claim 1, wherein the previous DLL output value comprises at least one of an original frequency DLL output value and a test frequency DLL output value.

9. The method of claim 8, wherein the interpolating of the new offset value comprises:

interpolating a scaling factor, wherein the scaling factor is a function of the previous DLL output value and the new DLL output value.

- 10. The method of claim 9, wherein the interpolated new offset value is a function of at least one of the scaling factor and the offset value.
  - 11. The method of claim 1, wherein the interpolating comprises:

deriving an empirical rule, based on at least one of the new DLL output value and a passing window size of a signal;

selecting a step size, based on the empirical rule; and

selecting a new offset value by adjusting a range of values for the at least one NCDL using the selected step size.

- 12. The method of claim 1, wherein the change in the DLL output value is caused by a change in an operating condition of the DDR memory controller.
  - 13. The method of claim 1, further comprising:
- (c) repeating (b) upon a change in an operating condition of the DDR controller.
- 14. A computer readable media storing a plurality of instructions, wherein execution of the plurality of instructions causes:
- (a) calculating an offset value for at least one numerically controlled delay line (NCDL); and
- (b) interpolating a new offset value for the at least one NCDL, based on a change in a delay locked loop (DLL) output value from a previous DLL output value to a new DLL output value.

- 15. The computer readable media of claim 14, wherein the at least one NCDL comprises at least one of a write NCDL, a read NCDL, and a gate NCDL.
- 16. The computer readable media of claim 14, wherein the offset value comprises a final write NCDL offset.
- 17. The computer readable media of claim 14, wherein the offset value comprises a final read NCDL offset.
- 18. The computer readable media of claim 14, wherein the offset value comprises a final gate NCDL offset.
- 19. The computer readable media of claim 14, wherein the interpolating of the new offset value comprises:

interpolating a scaling factor, wherein the scaling factor is a function of the previous DLL output value and the new DLL output value.

- 20. The computer readable media of claim 19, wherein the interpolated new offset value is a function of at least one of the scaling factor and the offset value.
- 21. The computer readable media of claim 14, wherein the previous DLL output value comprises at least one of an original frequency DLL output value and a test frequency DLL output value.
- 22. The computer readable media of claim 21, wherein the interpolating of the new offset value comprises:

interpolating a scaling factor, wherein the scaling factor is a function of the previous DLL output value and the new DLL output value.

23. The computer readable media of claim 22, wherein the interpolated new offset value is a function of at least one of the scaling factor and the offset value.

24. The computer readable media of claim 14, wherein the interpolating comprises:

deriving an empirical rule, based on at least one of the new DLL output value and a passing window size of a signal;

selecting a step size, based on the empirical rule; and

selecting a new offset value by adjusting a range of values for the at least one NCDL using the selected step size.

- 25. The computer readable media of claim 14, wherein the change in the DLL output value is caused by a change in an operating condition of the DDR memory controller.
  - 26. The computer readable media of claim 14, further comprising:
- (c) repeating (b) upon a change in an operating condition of the DDR controller.